

Appl. No. 10/696,745  
Amdt. Dated May 12, 2006  
Reply to Office Action of January 12, 2006

Attorney Docket No. 81716.0112  
Customer No. 26021

REMARKS

Minor changes are made to this specification. Claims 4, 5, 11, 12, and 15-20 are withdrawn. Claim 8 is canceled by the Examiner. New claim 21 is added. Claim 1 is amended. Claims 1 and 21 are the independent claims. Claims 1-3, 6, 7, 9, 10, 13, 14, and 21 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

CLAIM REJECTION UNDER 35 U.S.C. § 103(a)

Claims 1-3, 6-10, 13 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Uchimura (U.S. Patent No. 5,982,256) in view of Koriyama (U.S. Patent No. 6,239,669). Applicant respectfully traverse the rejection herein.

The present invention is directed to a high frequency line-to-waveguide converter in which a high frequency line is converted into a waveguide. The connection between the high frequency circuit and an antenna or between high frequency circuits is performed through the waveguide, such that mounting of a system can be easily performed. The independent claim 1 of present invention, as previously presented, is recited below:

“A high frequency line-to-waveguide converter comprising:  
a high frequency line including a dielectric layer, a line conductor disposed on one surface of the dielectric layer, and a ground conductor layer disposed on the same surface so as to surround one end of the line conductor, wherein the one end of the line conductor is short-circuited to the ground conductor layer;

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a slot formed in the ground conductor layer so as to be substantially orthogonal to the one end of the line conductor and coupled to the high frequency line;

a shield conductor part disposed on a side of or in an inside of the dielectric layer so as to surround the one end of the line conductor and the slot; and

a waveguide disposed on a side of the other surface of the dielectric layer so that an opening is opposite to the one end of the line conductor and the slot, the waveguide extending in a direction from the one surface of the dielectric layer toward the other surface thereof, and being electrically connected to the shield conductor part.”.

The applied references do not disclose or suggest the above features of one aspect of the present invention as defined by independent claim 1. In particular, Uchimura and Koriyama not disclose or suggest, “wherein the one end of the line conductor is short-circuited to the ground conductor layer,” as required by that claim.

The applied Uchimura reference is directed to connecting the transmission line of the laminated waveguide with other transmission lines via a microstrip or coplanar line. (*Uchimura; Col. 13, line 59 – Col. 14, line 4*).

Amend independent claim 1 requires one end of the line conductor be short-circuited to the ground conductor layer. The reflection by the short circuit thus does not change the phase of a magnetic field, and the reflected wave and the high frequency signal transmitted through the high frequency line have the same phase and intensity each other to be highly coupled to the slot. Accordingly, the conversion efficiency from the high frequency line to the waveguide is enhanced. (See, *Specification; Page 78, lines 4-14*).

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In contrast, Uchimura and Koriyama fail to teach or suggest the above features of amended independent claim 1.

In light of the foregoing, Applicant respectfully submits that independent claim 1 is allowable over the applied references, and such allowance is respectfully requested.

Dependent claims 2, 3, 6, 7, 9, 10, and 13-14 depend directly or indirectly from amended independent claim 1, and are allowable for at least the same reasons as amended independent claim 1.

Moreover, Applicant respectfully submits independent claim 21 reciting, "two slots formed in the ground conductor layer so as to be substantially orthogonal to the one end of the line conductor and coupled to the high frequency line, wherein the two slots are non-connecting;" not disclosed nor suggested by the applied references, is also allowable over those references.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

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Respectfully submitted,  
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